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(56) Documents cited

GB 2131907 A

GB 2045133 A

GB 1253544 A

GB 0952301 A

WO 85/05415 A

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(54) A fastening device

(57) A fastening device in the form of a chipboard screw 1 has a thread formation 2 comprising two helices 3. The helices 3 are superimposed on a single thread formation which has a twin start. Facing surfaces 4, 5 of successive turns 6 diverge to provide a wedge shape between successive turns. This formation retains the integrity of material receiving the device. As shown, the helix angle is  $21\frac{1}{2}^\circ \pm 1\frac{1}{2}^\circ$ , the distance between successive crests is 0.43 of the shank diameter, the depth of thread is 0.2 of the shank diameter and the point 13 has an angle of  $25^\circ \pm 2^\circ$ .

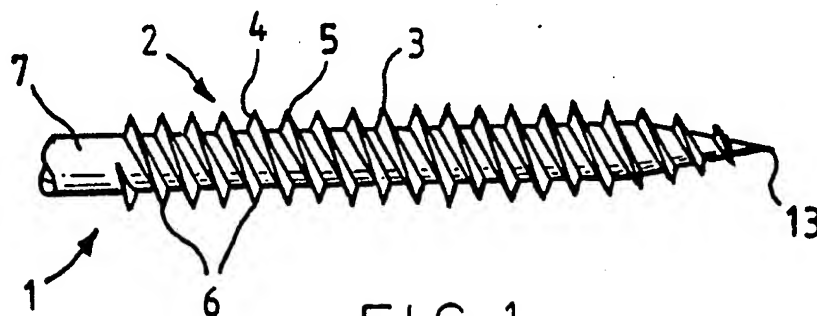


FIG. 1

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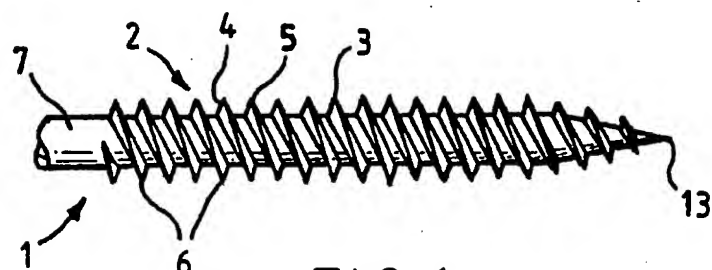


FIG. 1

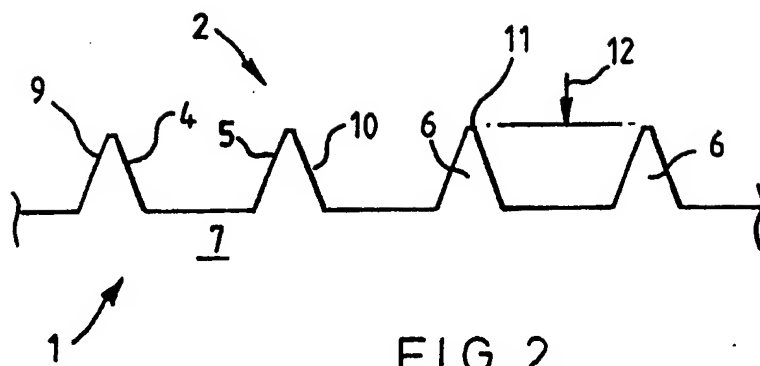


FIG. 2

A FASTENING DEVICE

The invention relates to a fastening device, particularly a screw.

Fastening devices such as screws are often used to secure one object to another, but sometimes the act of inserting the device  
5 into an object can lead to rupture or fragmentation of the material from which the object is composed, so that the device is loose and the fixing is unsound.

It is accordingly an object of the invention to seek to mitigate this disadvantage.

10 According to the invention there is provided a fastening device having a thread formation comprising two helices.

The two helices may suitably be superimposed on a single thread formation.

The two helices may be arranged so that facing surfaces of  
15 successive turns diverge from a shank of the fastening device.

The helix angle may be  $21\frac{1}{2}^{\circ} \pm \frac{1}{2}^{\circ}$ .

A fastening device embodying the invention is hereinafter described, by way of example, with reference to the accompanying drawings.

20 Figure 1 is an elevational view of a shank of a fastening device in the form of a chipboard screw according to the invention; and

Figure 2 is an enlarged sectional view of part of the thread formation of the screw of Figure 1.

25 Referring to the drawings, there is shown a fastening device in the form of a chipboard screw 1 having a thread formation 2 comprising two helices 3. The helices 3 are superimposed on

- a single thread 2 formation which has a twin start. Facing surfaces 4 and 5 of successive turns 6 diverge from a shank 7 of the screw 1 so as to provide a wedge shape between successive turns 6. Conversely, each turn 6 is formed from surfaces 4,9 and 5,10 which converge from the shank 7 to a crest 11 which is flat, suitably 0.1mm long in the embodiment. The surfaces 4,9 5,10 subtend an angle of  $40^\circ \pm 1^\circ$  and the distance between centres of successive crests 11 is 0.43 of the basic outside diameter of the shank 7.
- 10 The thread depth 12 is 0.2 of the basic outside diameter of the shank.

The angle of each helix of the double helix 3 is  $21\frac{1}{2}^\circ \pm \frac{1}{2}^\circ$  in the embodiment shown.

- The shank 7 terminates in a point 13 the angle of which is
- 15  $25^\circ \pm 2^\circ$ .

- In use to screw into chipboard or some other material which has a composition such that it could be broken up or fragmented by the thread formation 2, the turns 3 of the thread bite into the material and as the shank 7 is rotated displaced material is fed between facing surfaces 4,5 of successive turns 3 and is held firmly therebetween but with not such a pressure that the chipboard material is torn and destroyed, rather the facing surfaces 4,5 being wedge shaped hold the material together. The screw 1 is thus firmly anchored in the chipboard, which retains
- 20 its integrity and does not become destroyed with consequent loosening of the fixing, or, in the extreme case, loss of the screw 1.

In a modification, not shown, the thread form 2 may be half high, thereby giving the appearance of a sharp point.

CLAIMS

1. A fastening device having a shank, and a thread formation comprising two helices.
2. A device according to Claim 1, the two helices being 5 superimposed on a single thread formation.
3. A device according to Claim 2, the two helices being arranged so that facing surfaces of successive turns diverge from a shank of the fastening device whereby to provide a wedge shape.
4. A device according to Claim 2 or Claim 3, , the helix angle 10 being  $21\frac{1}{2}^{\circ} \pm \frac{1}{2}^{\circ}$  respectively.
5. A device according to Claim 3 or Claim 4, the distance between centres of successive crests being less than half the diameter of the shank.
6. A device according to Claim 5, the distance between 15 successive crests being 0.43 in diameter of the shank.
7. A device according to any preceding Claim, the thread formation being half high.
8. A fastening device, substantially as hereinbefore described with reference to the accompanying drawings.